

Appl. No. : 10/820,417
Filed : April 7, 2004

REMARKS

Claim 1 has been amended to clarify the invention. Claim 18 has been rewritten to include all of the limitations of claim 17 upon which claim 18 is dependent. Claims 19 and 20 have been amended to depend from claim 18. Claims 17, 22, and 25 have been canceled without prejudice or disclaiming the subject matter recited therein. No new issue or no new matter has been raised. Applicant respectfully requests entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

Claim Rejection – 35 U.S.C. § 112

Claim 17 has been rejected under 35 U.S.C. § 112, second paragraph, with regard to the misspelling. Claim 17 has been canceled without prejudice, and the misspelling has been corrected to “insulating” in amended claim 18, thereby obviating this rejection.

Claims 1, 5-9, and 13-16 have been rejected under 35 U.S.C. § 112, second paragraph, with regard to the phrase “neither one of (a) nor (b) occurs” in claim 1. The phrase means that (a) or (b) does not occur in the laminating step, but (a) and (b) occur in the pressing step. Claim 1 has been amended to clarify that (a) and (b) occur in the pressing step, thereby obviating this rejection.

Rejection Under 35 U.S.C. § 103

Claims 1, 5-9, 14-17, 19-22, and 25 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukutake (No. 5473118). Claims 17, 22, and 25 have been canceled without prejudice. Claims 19 and 20 have been amended to depend from claim 18 which has not been rejected on this ground. Claim 21 depends ultimately from claim 18. Thus, this rejection applies to claims 1, 5-9, and 14-16. Claim 1 is independent and has been amended to clarify the subject matter. Applicant respectfully traverses this rejection.

Claim 1 recites:

preparing a composite sheet comprising: (i) a porous film having a top surface and a lower surface and (ii) an adherent sheet containing a thermosetting resin, said adherent sheet being formed exclusively on or at the top surface of the porous film;

preparing a wiring layer having wiring patterns formed on an insulating layer;

laminating the composite sheet on top of the wiring patterns by facing the lower surface of the porous film toward the wiring patterns and facing the adhesive sheet away from the wiring patterns; and

pressing the composite sheet under heat under conditions such that both (a) and (b) are completed to integrate the wiring board: (a) the composite sheet is deformed to contact both the wiring layer and the insulating layer, and (b) the adherent sheet is fully permeated within the porous film.

The Examiner states: "Figure 3 [of Fukutake] shows at least a dielectric substrate (1), electric conductors (2), a porous fluoropolymer film (3), an adhesive or adherent sheet (7) and a non-porous polymer film (8)."

However, claim 1 recites "said adherent sheet being formed exclusively on or at the top surface of the porous film." In Fukutake, an adhesive (4) is formed on the bottom surface of the porous fluoropolymer film (3), and the adhesive or adherent sheet (7) is formed on the top surface of the porous fluoropolymer film (3). Thus, Fukutake clearly does not teach or suggest at least the above limitation of claim 1.

The Examiner further states: "It would have been obvious to fully permeate the porous film (3) with the adherent sheet (7) if in fact Fukutake et al do not expressly teach this limitation inasmuch as the completely filled porous film would be better able to function i.e. reduce cross-talk and increase signal transmission speed and to last longer in service (emphasis added)."

However, on the contrary, Fukutake states:

The amount of adhesive 4 forming the layer on the porous fluoropolymer film 3 of the coverlay film must be sufficient to uniformly contact and bond to the surfaces of the dielectric substrate 1 and printed conductors 2. At the same time it is desirable that the amount of adhesive in the coverlay film be kept low so as to keep the Er [dielectric constant] of the coverlay film as low as possible, and to prevent lateral flow of the adhesive which can result in closure of pre-formed holes for access to circuitry or in segregation of the adhesive into pockets of high concentration and locally high Er. *** Typically, the amount of adhesive 4 applied to form the layer on the surface of the porous fluoropolymer film 3 will be in the range of **5% to 30%** of the initial pore volume of the porous fluoropolymer film. (Emphasis added.) Column 4, lines 19-45

Further, Fukutake states:

The assembly 13, which is otherwise the assembly depicted in FIG. 1, further comprises a coverlay film having a non-porous synthetic polymer film 8 laminated to the

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surface of porous fluoropolymer film 3 away from the printed circuit board by means of an adhesive 7. Column 7, lines 59-64

In Fukutake, the adhesive (7) is used simply for laminating the non-porous polymer film (8) to the porous film (3). There is no motivation or suggestion to fully permeate the porous film (3) with the adherent sheet (7).

Thus, contrary to the Examiner's assertion, Fukutake does not teach or suggest the processes of claim 1. In claim 1, in the pressing step, (a) the composite sheet is deformed to contact both the wiring layer and the insulating layer, and (b) the adherent sheet is fully permeated within the porous film (see Figs. 2, 3, and 5, for example). The adhesive sheet is placed exclusively on the upper side of the porous film opposite to the lower side facing to or in contact with the wiring patterns but is permeated through the porous film and reaches the wiring patterns by the pressurization under heat. By doing this, the porous film can easily be deformed and fitted onto the wiring patterns (paragraph 0011 on page 3, for example). Fukutake does not teach or suggest the above features.

In view of the foregoing, not all of the limitations of claim 1 are not taught or suggested by Fukutake, and thus, claim 1 cannot be *prima facie* obvious over Fukutake. At least for this reason, the remaining dependent claims also cannot be *prima facie* obvious over Fukutake. Applicant respectfully requests withdrawal of this rejection.

Allowable Subject Matter

Claim 18 has been objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 18 has been so rewritten, thereby rendering claim 18 allowable.

Claims 26-29 are allowed.

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CONCLUSION

In light of the Applicant's amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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